

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER NO. 83-22

NPDES NO. CA0004880

WASTE DISCHARGE REQUIREMENTS FOR:

PACIFIC GAS AND ELECTRIC COMPANY  
PITTSBURG POWER PLANT  
PITTSBURG, CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

General Findings

1. Pacific Gas and Electric Company, Pittsburg Power Plant, (hereinafter Discharger) was issued Regional Board Order No. 76-63, an NPDES permit prescribing waste discharge requirements for the discharge from the Pittsburg steam generating electric power plant. This permit expired on May 1, 1981, but was allowed to remain in effect until the Federal Environmental Protection Agency issued its effluent limitation guidelines for steam electric power plants. These guidelines were published on November 19, 1982 in the Federal Register. The Discharger filed an Application dated April 27, 1981 for re-issuance of the NPDES Permit, and subsequently amended the Application.
2. The report of waste discharge describes the three existing discharges as follows (see flow schematic in Attachment A):

<u>Discharge Outfall</u>	<u>Contributory Waste Stream</u>	<u>Annual Flow Average gpd</u>
001	A. Once through cooling Water from Units 1 through 6	1 billion
	B. Low volume waste	
	001A Intake screen wash	150,000
	001B Clarifier and Filter blowdown and Reverse Osmosis Building Drains-Settling pond	97,000
	001C Reverse Osmosis Reject	220,000
	001D Boilers 1-6 Blowdown	24,000
	001E Ion Exchange Regener- ation Waste	32,000
	001F Fireside/air preheater washes, boilers 1-7	2,700

<u>Discharge Outfall</u>	<u>Contributory Waste Stream</u>	<u>Annual Flow Average gpd</u>
	001G Oil-Water Separation	54,600
	C. 001H Cooling Tower Blowdown Unit 7	17 million
002	Yard drains discharge to Suisun Bay	5,000
003	Yard drains from fuel oil tanks 8-14 discharged to Willow creek, a tribu- tary of Suisun Bay	50,000

The 001 discharge structure is located on the Southern shore of Suisun Bay approximately twelve hundred feet westerly of New York Point.

- The Discharger pumps condenser cooling water from two distinct but adjacent shoreline surface water intake structures located along Suisun Bay approximately two thousand feet westerly of New York Point. Circulating cooling water drawn from both intakes passes through separate bar racks and screens. The design approach and through-screen velocities are as follows:

Intake Serving Units

Velocities	1-4,7	5 & 6
Approach Screen ft/sec	0.8	0.8
meters/sec	0.24	0.24
Through Screen, ft/sec	2.0	1.5
meters/sec	0.61	0.45

- The Discharger cools the condensers by pumping water from the intake through the condenser to the point of discharge. The design capacities of the condensers and single speed pumps are as follows:

<u>Units</u>	<u>Design Condenser Temperature Rise</u>	<u>Pumps Design Capacity (gpm each pump)</u>
1-4	15°F	49,300
5,6	18°F	80,250
7		10,100

- EPA and the Board have classified this discharge as a major discharge.
- Concrete and plastic lined evaporation ponds are maintained for the disposal of acid metal cleaning waste, oil sludge and fireside preheater washwater. These ponds will be regulated under separate Board Order.

7. The Board adopted a revised Water Quality Control Plan, San Francisco Bay Basin (Basin Plan) on July 21, 1982, and the State Water Resources Control Board approved it on October 16, 1982. The provisions of this permit are consistent with the objectives of the Basin Plan.
8. The beneficial uses of Suisun Bay and contiguous waters are:
  - a. Recreation
  - b. Fish migration and habitat
  - c. Habitat and resting for waterfowl and migratory birds
  - d. Industrial, agricultural & municipal water supply
  - e. Esthetic enjoyment
  - f. Navigation
9. Effluent limitation, and toxic and effluent standards established pursuant to Sections 301, 302, 303(d), 304, 307, and 316 of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.
10. The Board finds that the Best Practicable Control Technology Currently Available (BPT) effluent limitations which the U.S. Environmental Protection Agency has promulgated to regulate conventional pollutants for the steam-electric power generating point source category are equivalent to Best Conventional Pollutant Control Technology (BCT) for the Pittsburg Power Plant of Pacific Gas and Electric Company.
11. The action to adopt an NPDES permit is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000 et seq.), in accordance with Section 13389 of the California Water Code.
12. The Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
13. The Board, in a public hearing, heard and considered all comments pertaining to the discharge permit.
14. A Glossary of Terms is provided in Attachment C to clarify terminology and concepts used throughout this permit.

#### Findings Related to Thermal Effluent Limitations

15. The CWA requires compliance with State water quality standards for the discharge of thermal effluent. The State Water Resources Control Board (State Board), on 18 September 1975, amended the Water Quality Control Plan for Control of Temperature in the Coastal Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan). This plan contains water quality objectives for the San Francisco Bay Estuary and requires existing dischargers to define the effect of the discharge on beneficial uses and determine the design and operating changes which would be necessary to achieve compliance with the provisions of this plan.

16. The Regional Board may, in accordance with Section 316(a) of the CWA, and subsequent federal regulations including 40 CFR 122, grant an exception to specific water quality objectives in the Thermal Plan. Prior to becoming effective, such exceptions and alternative less stringent requirements must be approved by the State Water Resources Control Board. Less stringent requirements shall provide adequate protection to beneficial uses including the protection and propagation of a balanced indigenous community of fish, shellfish, and wildlife, in and on the body of water into which the discharge is made.
17. The Discharger has requested an exception to the Thermal Plan and submitted reports in 1976 and 1977, intended to comply with Section 316(a). Organisms are exposed to thermal effects when pumped through the power plant cooling water system (pumped entrainment) and when travelling through the discharge plume (plume entrainment). Plume entrainment was evaluated in the 316(a) studies while pumped entrainment was evaluated in the 316(b) studies. The exception request was held in abeyance by the Regional Board staff pending results of the pumped entrainment studies. Results of these additional studies were submitted to the Regional Board in 1981.
18. Based on Section 316(a) and (b) study reports submitted by the Discharger, it has been determined that selected effluent limitations in the State Thermal Plan are more stringent than necessary to assure the protection and propagation of a balanced, indigenous population of shellfish, fish, and wildlife in and on the body of water into which the discharge is to be made. Accordingly, the Board finds sufficient justification for granting a variance under Section 316(a) of the CWA from the following effluent limitations in the State Thermal Plan:
  - A. "No discharge shall cause a surface water temperature rise greater than 4 F (2.2 C) above the natural temperature of the receiving waters at any time or place."

The Discharger has demonstrated the surface area of the thermal plume within the 4°F (2.2°C) isotherm remains fairly stable at different tidal stages; the plume area constitutes only a small percentage of the surface area of the receiving water; and rapid temperature decay of the cooling water after it leaves the discharge structures reduces the exposure time of plume entrained organisms to the highest discharge temperatures. There is no evidence that the elevated temperatures within the existing thermal plume have adversely affected the local or regional phytoplankton or zooplankton communities, benthic community structures, Neomysis production or distribution, or the life stages and migration or movement of important anadromous and resident fish species. Therefore, allowing the existing plume should have no significant impact on aquatic resources.

- B. "Elevated temperature waste discharges, either individually or combined with other discharges, shall not create a zone, defined by water temperatures of more than 1°F (0.6°C) above natural receiving water temperature, which exceeds 25 percent of a main river channel at any point."

There is no evidence that the existing discharge plume violates the river cross sectional area limitation. Furthermore, there is no evidence that the elevated temperatures within the existing thermal plume have adversely affected the local or regional phytoplankton or zooplankton communities, benthic community structure, Neomysis production or distribution, or the life stages and migration or movement of important anadromous and resident fish species. Therefore, allowing the existing plume should have no significant impact on aquatic resources.

- C. The maximum temperature shall not exceed the natural receiving water temperature by more than 20°F (11 C) (Delta-T)."

The delta-T temperature is derived by comparing the discharge temperature against ambient water temperature at the intake. If the ambient temperature is fairly high (e.g. in late summer) the temperature increase through the condensers can cause the temperature of the discharge to exceed 86°F. When the intake temperatures are higher than ambient due to recirculation of discharged cooling water, usually during the summer and early fall, the temperature of the discharge will exceed 86°F more frequently. This occurs in late spring through fall when receiving water temperatures are highest. The delta-T in the existing plume will have no significant impact on the aquatic resources. Adverse impacts of pumped entrainment due to temperatures exceeding 86°F will be addressed by the mitigation measures required for compliance with 316(b) of the CWA.

- D. "The maximum temperature of thermal waste discharge shall not exceed 86°F (30 C).

The Discharger has demonstrated that the maximum temperature of the thermal waste discharge historically has exceeded 86°F frequently during summer and early fall. Discharge temperatures exceeding 86°F have not had a significant impact on organisms in the receiving water plume when exposure is of limited duration. Adverse impacts of pumped entrainment resulting from temperatures exceeding 86°F will be addressed by the mitigation measures required for compliance with 316(b) of the CWA.

#### Findings Related to Best Technology Available (BTA) for Intake Systems

19. Section 316(b) of the CWA requires that the location, design, construction, and capacity of cooling water intake structures reflect

the BTA for minimizing adverse environmental impact. In compliance with Order No. 76-63 the Discharger submitted a final study report in September 1981 intended to comply with Section 316(b). Additional supporting reports were submitted during late 1981 and 1982.

20. The cooling water system intakes are located in the nursery area for striped bass, which is the principal organism of concern. There has been a sharp decline in striped bass population over the past ten years; the causes of this decline are not understood. Large numbers of young bass (and other fish and invertebrates) are entrained into the cooling system and are subjected to mechanical and thermal stresses. Approximately 90 percent of the annual power plant entrainment losses of larval and juvenile striped bass (normalized to 150 millimeters) occur approximately in a 45-day period between May and August (entrainment period). For purposes of these requirements the entrainment period is defined as in Provision D.1.(d).
21. During late spring and summer when ambient river temperatures are highest, recirculation of heated effluent contributes to elevated temperatures up to 15°F in the cooling system. Reducing recirculation of effluent could reduce pumped entrainment losses of striped bass.
22. In studies submitted by the Discharger, it is shown that BTA can be achieved by a number of different technologies, resulting in a reduction of 92.5 percent of the fish losses which occurred at the Pittsburg and Contra Costa Power Plants during the study period (March 1978-March 1979). The Regional Board has agreed to the discharger's proposed means of meeting the BTA requirements. BTA, for the purposes of these requirements, includes a Resources Management Program, intake system improvements and a performance guarantee.
  - a. The Resources Management Program is proposed to reduce the intake of cooling water at the Pittsburg and Contra Costa power plants during the period critical for early life stages of striped bass and other organisms. This reduction will be achieved by using new power sources in lieu of the Pittsburg and Contra Costa plants and by maximizing the use of the closed-cycle cooling system at Pittsburg Unit 7. In addition to Pittsburg Unit 7 (720 MW), two major Delta Units of 330 MW each are needed on spinning reserve at all times to maintain system reliability. The magnitude and timing of the new power sources and the reliability of Pittsburg Unit 7 are therefore critical to the effectiveness of the Resources Management Program.
  - b. The intake structures at Pittsburg Units 5 and 6 and at Contra Costa Units 6 and 7 are being improved by installation of variable-speed, circulating water pump controls. This action will result in a reduction in entrainment and impingement of organisms by reducing the cooling water flow when the units are at reduced load. The Board may also require screen modifications for the above units and recirculation barriers upon completion of studies of their effectiveness and feasibility.

- c. The actions described in Finding a and b above are predicted to result in an annual striped bass loss reduction of approximately 80% by 1985. The Discharger has proposed to enter into a performance guarantee agreement with the Department of Fish and Game (Department). This agreement will guarantee replacement of striped bass representing the difference between actual loss reductions and the target loss reduction of 92.5%.
23. The effective integration and implementation of the proposed Resources Management Program, intake structure improvements and performance guarantee constitutes BTA for the Pittsburg and Contra Costa power plants. The effectiveness of the BTA program in achieving maximum striped bass loss reductions will be subject to annual review by the Board.
24. The BTA program is predicted to contribute to protection of aquatic resources in the Bay-Delta system. As part of their on-going resource monitoring programs the Department will evaluate the survival rate of striped bass placed into the Bay Delta system. The Discharger shall contribute to the cost of these programs at a level satisfactory to the Executive Officer, as established under separate agreement with the Department. Any additional resource studies or evaluations are the responsibility of the Discharger.
25. The current net output capacity at the Pittsburg and Contra Costa Power Plants are as follows:

<u>Unit</u>	<u>Net Capacity (MW)</u>		
<u>Pittsburg</u>	<u>Closed Cycle</u>	<u>Flow through</u>	<u>Total</u>
7	720		
1 thru 4		652	
5 and 6		<u>650</u>	
Subtotal: Pittsburg			2022
<u>Contra Costa</u>			
1 thru 5		580	
6 and 7		<u>680</u>	
Subtotal: Contra Costa			1260
TOTAL: DELTA PLANTS			3282

26. Projected net power source additions from 1 January 1982 through 31 December as listed below are as follows:

<u>Net Power Resource Additions</u>	<u>Cumulative Capacity (MW)</u>		
	1984	1985	1992
Geothermal	483	491	1301
Diablo Canyon Power Plant	2190	2190	2190
Cogeneration	482	592	1251
Helms	1120	1120	1120
Miscellaneous	12	12	68
Total	4287	4405	5930

27. Based on the Discharger's projected power source addition schedule, the Discharger proposes to achieve the maximum benefit of it's Resource Management Program with respect to fish loss reduction at the Delta plants by May 1985.
28. Information provided by the Discharger has shown that sediment deposition occurs within the immediate vicinity of the Pittsburg Power Plant resulting in increased approach velocities to the intake structures bar racks. Intake water velocities are also increased by debris accumulation on the bar racks and intake screens at the plant.

IT IS HEREBY ORDERED, that Pacific Gas and Electric Company, Pittsburg Power Plant, in order to meet the provisions contained in Division 7 of the California Water Code and CWA and including regulations adopted thereunder shall comply with the following:

A Prohibitions

1. The discharge of polychlorinated biphenyl compounds is prohibited.

Effluent Limitations

B.

1. Discharge 001 shall not contain constituents in excess of the following limits:
- a. Chlorine residual                      0.0 mg/l, instantaneous maximum
  - b. pH    6.5 - 8.5
  - c. In any representative set of samples the waste as discharged shall meet the following limit of quality:



TOXICITY: The survival of test organisms acceptable to the Board shall achieve a median of 90% survival for three consecutive samples and a 90 percentile value of not less than 70% survival for 10 consecutive samples.

d. Thermal Discharge limitation

The maximum temperature of the discharge at the flood tide shall not exceed the natural receiving water temperature by more than 28°F (14.5°C). The natural receiving water temperature shall be measured at the intake structure on high flood tides.

2(a) Discharge 001B, 001C, 001D, 001E, 001F and 001G shall not contain constituents in excess of the following limits:

<u>Constituents</u>	<u>Unit</u>	<u>30-Day Average</u>	<u>Maximum Daily</u>
i. Total Suspended Solids	mg/l	30	100
ii. Oil and Grease	mg/l	10	20

(b) Discharge 002 and 003 shall not exceed the following limits:

i. Oil and Grease	mg/l	10	20
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3. Discharge 001H, for cooling tower blowdown, shall not contain constituents in excess of the following limits:

<u>Constituents</u>	<u>Unit</u>	<u>30-Day Average</u>	<u>Maximum Daily</u>
a. The 126 priority pollutants added for cooling tower maintenance except:	mg/l	No detectable amount	No detectable amount
b. Chromium, total	mg/l	0.2	0.2
c. Zinc, total	mg/l	1.0	1.0
d. Chlorine residual	mg/l		0.5 Instantaneous Maximum Free Available Chlorine



3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such standards.
4. Thermal Discharge Limitations
  - a. The discharge (001) shall not create a zone, defined by water temperatures of more than 1°F above natural receiving water temperature, which exceeds 25 percent of the cross-section area of a main river channel at any point. If the discharge is found to be in violation of the cross-section area at some future date, the discharger shall be given sufficient time to file an exemption request to this limitation.
  - b. The discharge (001) shall not cause surface water temperature rise greater than 4°F (2°C) above the natural temperature of the receiving water at a distance greater than 3500 feet from the discharge structure.

D. Provisions

Provisions Related to BTA Intake Systems

1. During the entrainment period, the Discharger shall implement the following Resource Management Plan, designed to minimize adverse environmental impacts:
  - a. The Discharger shall maximize the commitment, dispatching and power production of Pittsburg Unit 7, as required to meet system demand, in place of and before the dispatching and power production above minimum load at any other unit at Pittsburg or Contra Costa Power Plants, except under the following Conditions:
    - 1) Pittsburg Unit 5 or 6 may operate at a minimum load whenever Pittsburg Unit 7 is committed, dispatched or producing power, for the purpose of providing steam necessary to start or restart Pittsburg Unit 7.
    - 2) The Discharger may remove Pittsburg Unit 7 from service for emergency or unscheduled maintenance, for personnel or equipment safety or for the reliability of the system.

- b. Except for compliance with NRC requirements and refueling at Diablo Canyon Power Plant, the discharger shall minimize scheduled maintenance and outages, if it results in increased cooling water flow at the Pittsburg and Contra Costa Power Plants during the entrainment period, when such occurrence could be scheduled outside of the entrainment season.
  - c. The discharger shall minimize use of all units at the Pittsburg Power Plant except for Pittsburg Unit 7 and all units at Contra Costa Power Plant to minimize cooling water flows unless commitment and dispatching of these units is necessary to meet system demand, to meet California Power Pool commitments, and/or to maintain system reliability according to prudent utility operating practice (including equipment and personnel safety, area load demand and transmission considerations).
  - d. The entrainment period shall be deemed to commence on 15 May, or on such later date the Discharger establishes to the satisfaction of the Executive Officer. The entrainment period shall terminate on the date the Department predicts the striped bass 38 millimeter index will be set based on surveys conducted by the Department. If the Department does not conduct surveys, the entrainment period shall terminate 45 days from its commencement date.
2. The Discharger shall operate intake structures at the Contra Costa and Pittsburg Power Plants, and manage existing and new power resources to reduce fish losses in these plants by:

Striped Bass (150mm size equivalents)

<u>Minimum Percentage*</u>	<u>Compliance During Fish Class Years Beginning</u>
50%	1 March 1984
75%	1 March 1985 and 1986
79%	1 March 1987 and 1988

- \* The loss of striped bass is expressed in 150mm equivalents and is determined by the method discussed in Provision D.12. These percentages shall not reflect loss reduction by fish replacement program.
3. By 15 April 1984 and 1985 the Discharger shall report in writing to the Board on the feasibility of meeting the time schedule in provision D.2.
  4. The Discharger is required to install a recirculation barrier at the Pittsburg Power Plant if such a modification is predicted by the Board to result in significant reduction in 150mm equivalent striped bass losses when considered in context with other provisions of this permit and projected future operations.

The Discharger shall comply with the following time schedule:

<u>Task</u>	<u>Date</u>	<u>Date For Report of Compliance</u>
Biological Effectiveness Study Report		15 August 1983
Feasibility Study*	1 February 1984	15 February 1984
Complete Design*	1 June 1984	15 June 1984
Construction Completed*	1 May 1985	15 May 1985

\* Pending Board approval after its review of the Biological Effectiveness Study Report and Feasibility Study

5. The Discharger shall be required to install all or some of the screen modifications currently being tested within the Pittsburgh Units 1-4 intake structure on the screen assemblies for Pittsburgh Units 5 and 6 and Contra Costa Units 6 and 7 if such modifications prove to be operationally feasible and are predicted by the Board to result in a significant reduction in 150mm equivalent striped bass losses when considered in context with other provisions of this permit and projected future operation. The fine mesh screen panels, if accepted for use under the criteria above, may be removable but must be installed by the beginning of the entrainment period and must remain in place until three weeks after the end of the entrainment period as defined in Provision D.1.d.

The Discharger shall comply with the following schedule:

<u>Task</u>	<u>Date</u>	<u>Report of Compliance Due</u>
Complete Operation and Biological Tests	1 March 1984	15 March 1984
Complete Design*	1 July 1984	15 July 1984
Complete Construction*	1 May 1985	15 May 1985

\* Pending Board approval after its review of the Operation and Biological Tests Report

6. The Discharger shall install temperature-modified variable speed pump controls on the circulating-water pumps for Pittsburgh Units 5 and 6, according to the following time schedule:

<u>Task</u>	<u>Date</u>	<u>Report of Compliance Due</u>
Complete Design	14 February 1984	28 February 1984
Full Compliance	15 May 1984	30 May 1984

7. The Discharger shall minimize circulation water flow when units are at reduced load and shut off circulating water pumps when a unit is not committed, except for Provisions D.1.(a) or as required according to prudent operating practices to insure equipment and personnel safety.
8. The Discharger shall minimize cooling water flow at Pittsburgh Units 5 and 6, after installation of variable speed circulating water pump controls when the units are operating at reduced load.
9. The Discharger shall establish, by 8 July 1983, an agreement with the Department to provide payment to the Department for artificially propagating striped bass. The agreement will be reviewed by the Executive Officer and interested parties. The Regional Board will consider adopting the agreement on 17 August 1983. The agreement will become part of this Order and will be enforceable as set forth in full herein. Any changes after the agreement is approved shall be subject to review and approval by the Executive Officer.
10. The Discharger shall measure bar rack approach velocities and sediment deposition within the intake structure annually. The Discharger shall dredge sand and silt to eliminate build-up in front of the intake structure and routinely clean the bar racks at the Pittsburgh Power Plant as necessary to maintain bar rack approach velocities as close as practicable to design levels. The Discharger shall rotate and clean intake screen assemblies for all screen assemblies in operation at a frequency of not less than once every four(4) hours for the purpose of maintaining intake water velocities as close as practicable to design levels.
11. The Discharger shall minimize the duration, frequency and concentration of chlorine application as a cleaning agent for the condensers.
12. The Discharger shall provide a method of estimating the reduction in 150 mm equivalent striped bass lost annually as a result of entrainment and impingement for the approval of the Executive Officer according to the following time schedule:

<u>Task</u>	<u>Date</u>	<u>Report of Compliance Due</u>
Conceptual Design		15 July 1983
Full Compliance	1 September 1983	15 September 1983

13. Semi-annual technical reports to the Board, due by 15 October and 15 April each year, starting in 1983, shall include an evaluation of the previous year's BTA program performance according to the methodology approved by the Executive Officer. The Board will review these reports and those specified in Provision D.3. If the Board determines that the BTA program is not effective, it may revise the permit's BTA provisions as appropriate.

### General Provisions

14. Neither the discharge nor its treatment shall create a nuisance or pollution as defined in Section 13050 of the California Water Code.
15. The Discharger shall comply with all sections and time schedules of this Order immediately.
16. The Executive Officer shall develop a Self-Monitoring Program by 8 July 1983 for review by the Discharger and interested parties. The Regional Board will consider adopting the program on 17 August 1983.
17. The requirements prescribed herein do not authorize the commission of any act causing injury to property of another, nor protect the Discharger from his liabilities under federal, state or local laws, nor guarantee the discharger a capacity right in the receiving waters.
18. In the event of any change in control or ownership of land or waste the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to this office.
19. The Discharger shall permit the Regional Board:
  - (a) Entry upon premises where an effluent source is located or in which any required records are kept;
  - (b) Access at reasonable times to copy any records required to be kept under terms and conditions of this Order;
  - (c) Inspection at reasonable times of monitoring equipment or records; and,
  - (d) Sampling at reasonable times of any discharge.
20. The Discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed by the Discharger to achieve compliance with the waste discharge requirements.
21. After notice and opportunity for a hearing, this Order may be modified, suspended, or revoked, in whole or in part, during its term for cause including but not limited to, the following:
  - (a) Violation of any terms or conditions of this Order;
  - (b) Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts;
  - (c) A temporary or permanent reduction or elimination of the authorized discharge; or,
  - (d) A change in character, location or volume of discharge.

22. This permit shall be modified or alternatively revoked and reissued to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(c), and (D), 303, 304(b)(2), and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

(a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or,

(b) Controls any pollutant not limited in the permit.

The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

23. All applications, reports, or information submitted to the Regional Board shall be signed and certified pursuant to Environmental Protection Agency regulations (40 CFR 122.41K).

24. Pursuant to Environmental Protection Agency regulations [40 CFR 122.42(a)] the Discharger must notify the Regional Board as soon as it knows or has reason to believe (1) that they have begun or expect to begin, use or manufacture of a pollutant not reported in the permit application, or (2) a discharge of a toxic pollutants not limited by this permit has occurred, or will occur, in concentrations that exceed the specified limits.

25. Order No. 76-63 is hereby rescinded.

26. This Order expires on June 22, 1988 and the discharger must file a Report of Waste Discharge in accordance with Title 23, California Administrative Code, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

27. This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act or amendments thereto, and shall take effect at the end of 10 days from date of adoption provided the Regional Administrator, Environmental Protection Agency, has no objections.

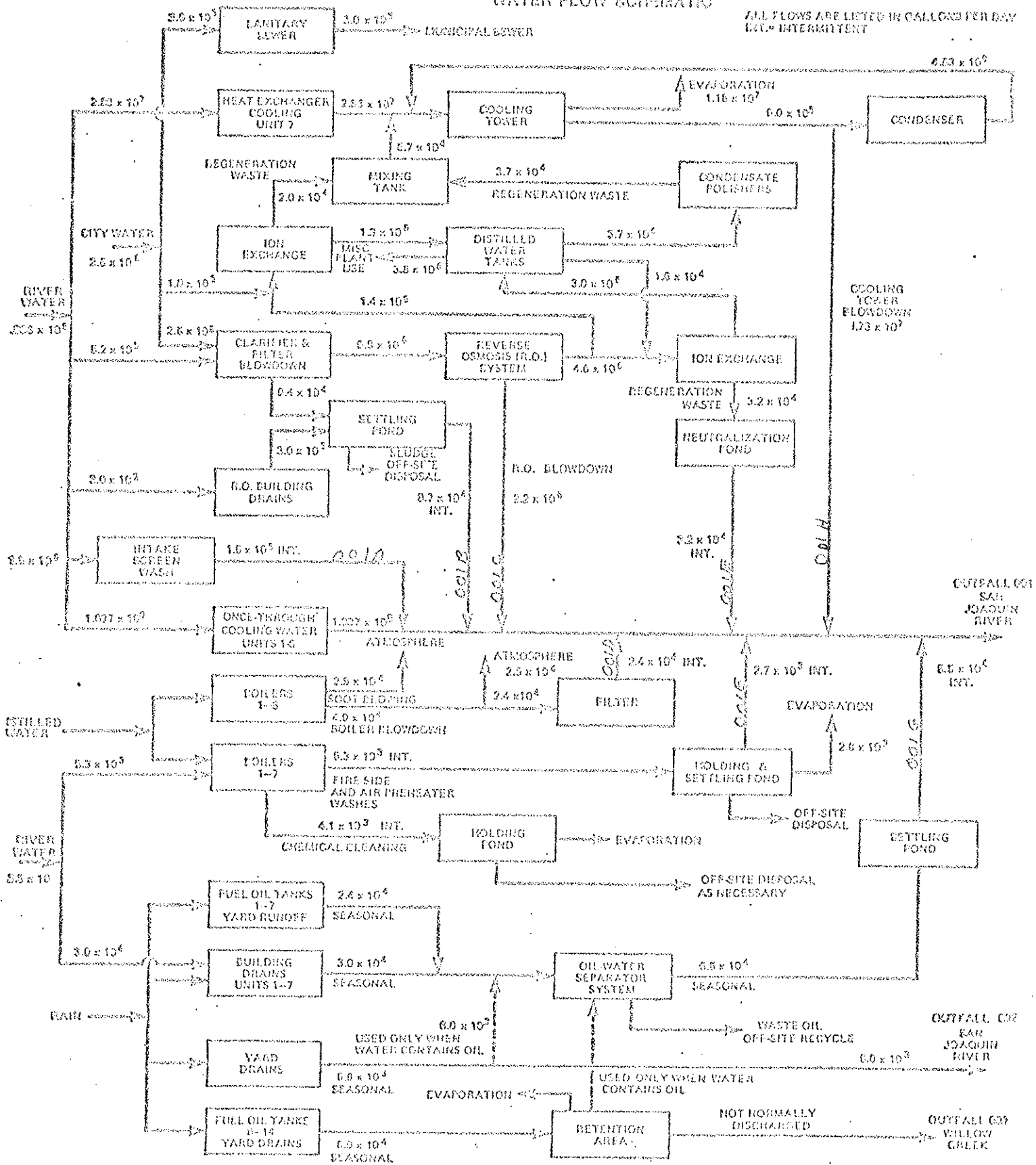
I, Fred H. Dierker, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 23, 1983.

FRED H. DIERKER  
Executive Officer



PITTSBURGH POWER PLANT  
WATER FLOW SCHEMATIC

ALL FLOWS ARE LISTED IN GALLONS PER DAY  
ECL-6 INTERMITTENT



## ATTACHMENT C

### GLOSSARY OF TERMS

#### 1. Thermal Plant Unit Commitment

This is the procedure used to determine which of PGandE's units will be operated, generally based upon the following criteria:

- a. estimated hourly and daily peak demands for the next several days;
- b. availability of other lower cost power, including hydroelectric, nuclear, geothermal, purchased power, and co-generation;
- c. spinning reserve requirement;
- d. availability of thermal electric units (whether units are out of service for maintenance or repairs);
- e. regional load requirements (e.g., minimum load requirement at certain plants to prevent transmission overloading); and
- f. relative thermal efficiency of units.

After evaluating these criteria, the system dispatcher will select the units to be placed in service with sufficient lead time since thermal units may require eight hours to place into service.

#### 2. Spinning Reserve

When a unit is on spinning reserve, it is operating at a low generation level, and ready to increase its load to make up for a sudden power loss elsewhere in the system and to provide a margin to cover the constantly changing demand. The California Power Pool requires that each member utility, including PGandE, maintain a spinning reserve equal to 7% of its estimated daily peak load.

#### 3. Economic Dispatch

Once the committed units are in operation, the next step is to determine the proper loading of each unit. The PGandE dispatch computer reviews the actual load requirements every four seconds and then determines the most economical loading for each thermal unit to meet the demand and minimize the fuel burned. The actual loading on each thermal unit is a function of its thermal efficiency fuel cost, location in the PGandE system, and of the total demand.

#### 4. Unit Service

During the course of a day, many of the PGandE generating units serve as base, peaking and load following units. Gas and oil fired steam electric units normally are not shut down overnite and, therefore, provide a minimum output during the early morning hours which may be considered as base load. The units then follow load during the morning and afternoon load changes and provide peaking capability over the peak hours.

- c. A fish return system to transport organisms removed from the screen by the low-pressure spraywash back to the receiving water body, and
- d. Heavy-duty bearings and motors to permit continuous rotation and cleaning, minimizing the time an organism is retained on the screen.

11. Variable Speed Circulating Water Pump Controls

Synchronous motors and variable frequency controls installed on the circulating water pumps enabling cooling water flow through the condensers to be reduced by lowering the pump speed.